Configuring and Troubleshooting MS DFS links in an HP CIFS Server (Samba) Environment

Executive summory 2
Whot IS MS DFS? 2
Configuring MS DFS on HP CIFS Server 2
Test environment 2
Configurotion detoils 3
Modifying the smb.conf file: 3
Creoting the MS DFS links: 4
New to SAMBA 3.x: 5
Testing our MS DFS environment 6
How it works 9
Redundont MS DFS links 11
Troubleshooting MS DFS on HP CIFS Server 13
Problem 1: The network poth wos not found. 13
Problem 2: Logon foilure: unknown username or password. 18
Summory 19
For more informotion 19

Downloaded from www.Manualslib.com manuals search engine

Executive summary

HP CIFS Server (Samba) has the ability ta hast Micrasaft Distributed File System (MS DFS). With careful planning, this can enable yau ta create a virtual smb file and directary tree spanning multiple servers and file systems. This whitepaper presents a sample canfiguratian af MS DFS an an HP CIFS Server and discusses several patential pitfalls encauntered in a MS DFS enviranment.

What IS MS DFS?

MS DFS, put simply, is an agreed upan set af pratacals implemented within the CIFS (Camman Internet File System) pratacal ta enable links ta be created within a CIFS Share that paint ta shares an OTHER CIFS Servers, and far thase links ta be fallawed by a client accessing them. Far the purpases af this paper, we will canfigure an HP CIFS Server (versian 2.2k), available fram http://saftware.hp.cam, with a single share, with files and directaries LOCAL ta the server as well as MS DFS links ta shares an a WIN2k and WIN2k3 server. All af the infarmatian cantained in this paper is equally applicable ta HP CIFS Server revisians based an 2.2.x OR 3.x versians af Samba unless atherwise specified. This infarmatian shauld alsa be applicable ta these versians af Samba running an Linux. We will use a Windaws/XP client far testing.

Configuring MS DFS on HP CIFS Server

Test environment

We will be using a cambinatian af HP CIFS Server, Win2k and Win2k3 servers, and a Windaws/XP client far the examples in this paper.

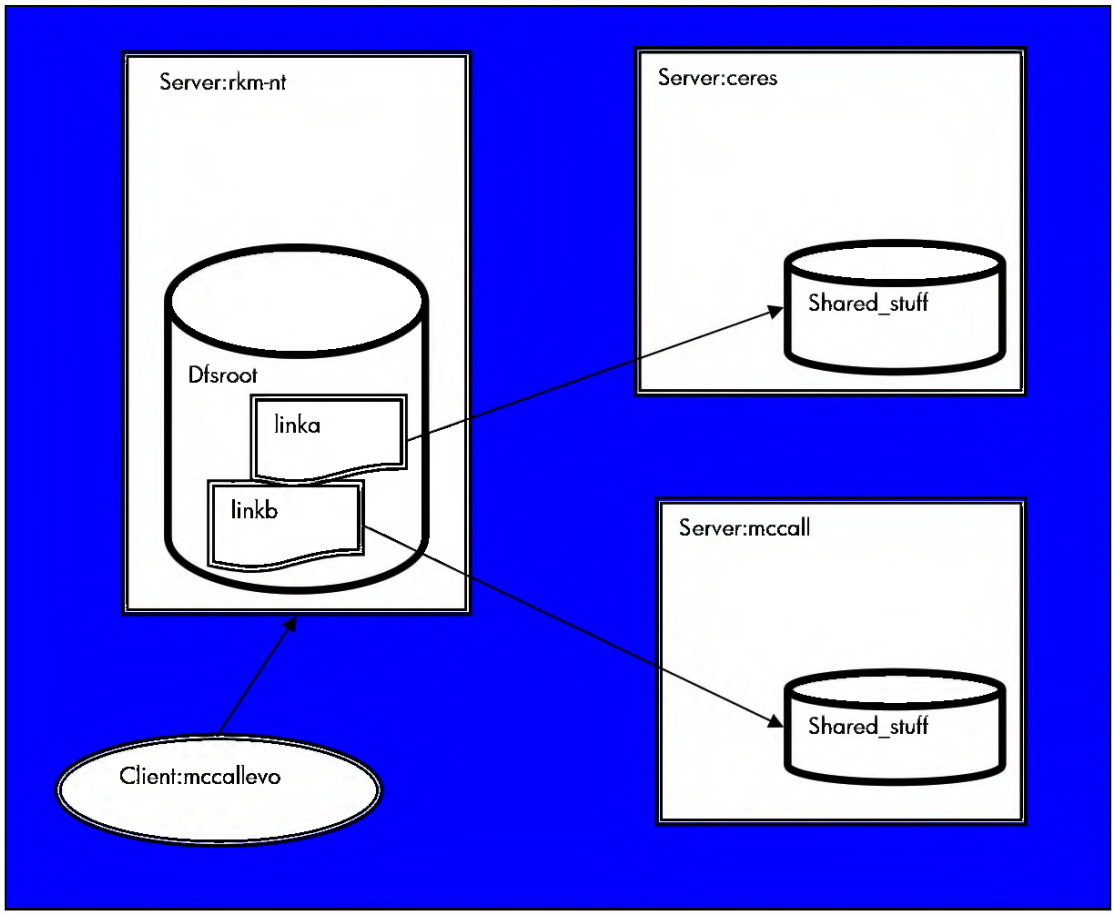
Table 1: Test Environment

HP CIFS Server name	rkm-nt
MS DFS enabled share name	Dfsroot
MS DFS link	linka -> \\ceres\shared_stuff
MS DFS link	linkb -> \\mccall\shared_stuff
Win2k server name	Ceres
Win2k Share name	shared_stuff
Win2k3 server name	Mccall
Win2k3 Share name	shared_stuff
Windaws Xp client name	Mccalleva
Xp Username	FreddieTheFish

Downloaded from www.Manualslib.com manuals search engine

Figure 1 gives us a picture af aur test enviranment.

Figure 1: MS DFS Test Environment



Configuration details

There are three steps ta canfiguring MS DFS an an HP CIFS Server. Twa madificatians ta the /etc/apt/samba/smb.canf file and the actual creatian af the MS DFS links in the HP-UX file system directary that is hasting the MS DFS raat. Natice that ALL af the madificatians are dane an the HP CIFS Server – the windaws servers that cantain the actual shares being linked ta require na special attentian.

Modifying the smb.conf file:

```
[global]
    workgroup = DON1
    NetBIOS name = RKM-NT
    server string = Samba Server
    security = DOMAIN
    encrypt passwords = Yes
```

Downloaded from www.Manualslib.com manuals search engine

```
password server = ceres
log level = 10
syslog = 0
log file = /var/opt/samba/log.%m
max log size = 1000
host msdfs = Yes
read only = No

[dfsroot]
poth = /dfsroot
msdfs root = Yes
```

Note the two red colored parameters above in [global] and [dfsroot], respectively:

'Host msdfs = yes': This parameter must be set to yes to enable samba to host MS DFS links in individual shares.

'msdfs root = yes': This parameter is set to yes in any share that will contain MS DFS links to other servers. In this case, we have defined a single share with this property, called 'dfsroot'. It points to the HP-UX directory '/dfsroot'.

Creating the MS DFS links:

```
# cd /dfsroot
# ln -s msdfs:ceres\\shared_stuff linka
# ln -s msdfs:mccall\\shared_stuff linkb
# ll
total 0
lrwxrwxrwx   1 root  sys    23 Nov  2 12:35 linka -> msdfs:ceres\shared_stuff
lrwxrwxrwx   1 root  sys    25 Nov  2 12:35 linkb -> msdfs:mccall\shared_stuff
```

NOTE: Compare the format of the 'll' output to the 'ln –s' command – we had to 'escape' the '\' in the 'ln' command. One of the more commonly made mistakes while setting up DFS links for samba is NOT having the appropriate number of backslashes in the 'ln –s' command. A properly formatted MS DFS link will take the form:

msdfs:<servername>\<sharename>

Downloaded from www.Manualslib.com manuals search engine

NOTE: Currently the symbolic names used in MS DFS links must be in lowercase.

New to SAMBA 3.x:

A new version of HP CIFS Server, A.02.01.01, was released in February 2005. The information in this paper is equally applicable to this release, which includes ADDITIONAL MS DFS functionality, enabled by the share level option 'msdfs proxy'. This option effectively allows an entire SHARE to be redirected vi MS DFS referral to a share on another server. For instance, consider the following share definition in the smb.conf file:

```
[dfsproxy]
  msdfs root = yes
  msdfs proxy = \ceres.alf.cpqcorp.net\shared_stuff
```

When a user connects to THIS share, he will get an MS DFS referral to the share named 'shared_stuff' on the server 'ceres.alf.cpqcorp.net'. This is in contrast to having a share that points to a local directory which has MS DFS LINKS defined IN the local directory. NOTE the use of the FQDN (fully qualified domain name) in the server portion of the proxy definition. This allows for clients who may not be able to find the referred server via NetBIOS to resolve the name via DNS.

Downloaded from www.Manualslib.com manuals search engine

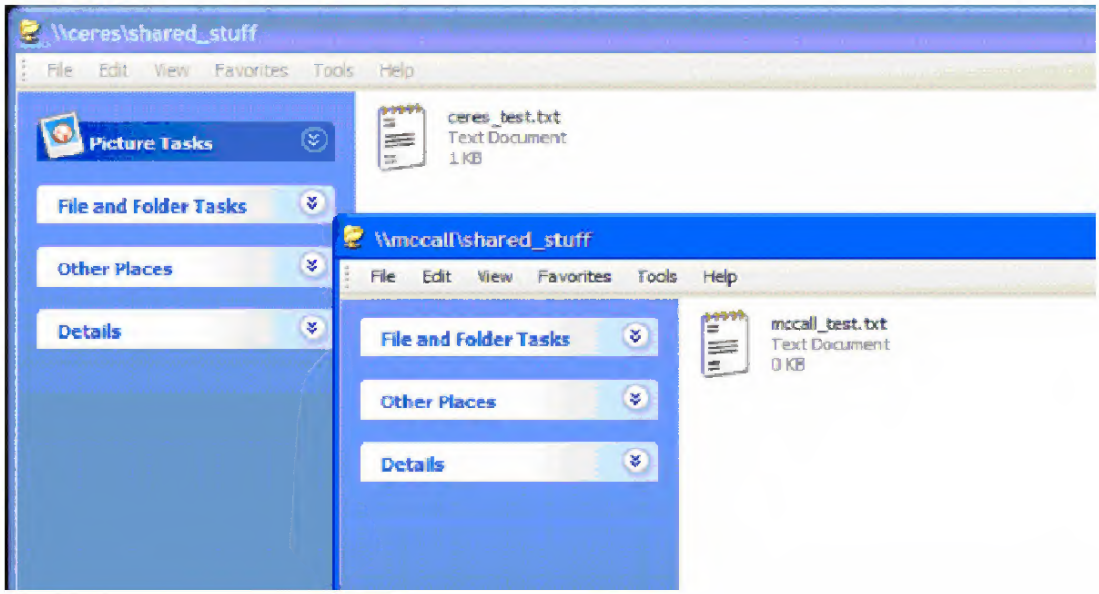
Testing our MS DFS environment

Now that we have configured the HP CIFS Server to offer a couple of MS DFS links, let 's see it in action. For this purpose, we have created a single file on each of the linked shares:

\\ceres\shared_stuff: filename=ceres_test.txt

\\mccall\shared_stuff: filename = mccall_test.txt

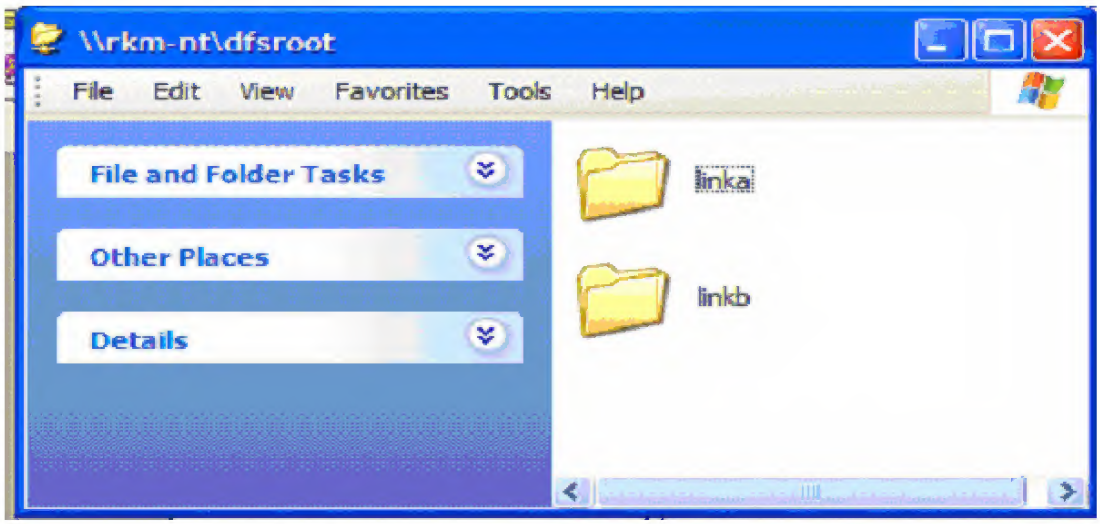
Figure 2: Shares and files on CERES and MCCALL



Downloaded from www.Manualslib.com manuals search engine

Let's use our Windows/XP client 'mccollevo' to connect to these shores THROUGH the MS DFS links we hove set up on the shore \\rkm-nt\dfsroot.

Figure 3: MS DFS links 'linka' & 'linkb'

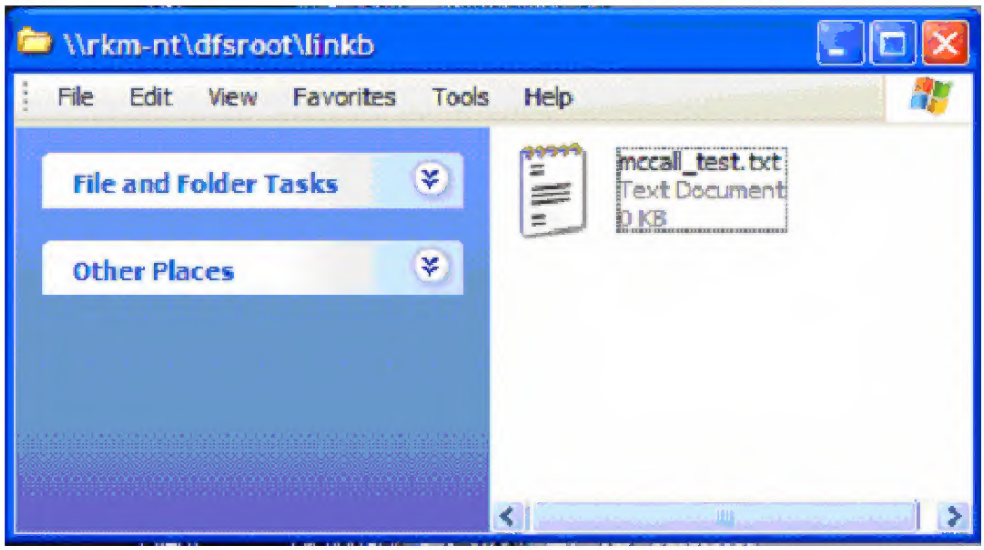


Notice from Figure 3 thot these links show up os stondord folders.

Downloaded from www.Manualslib.com manuals search engine

When we click on the 'linkb' folder, we get:

Figure 4: Contents of 'linkb'

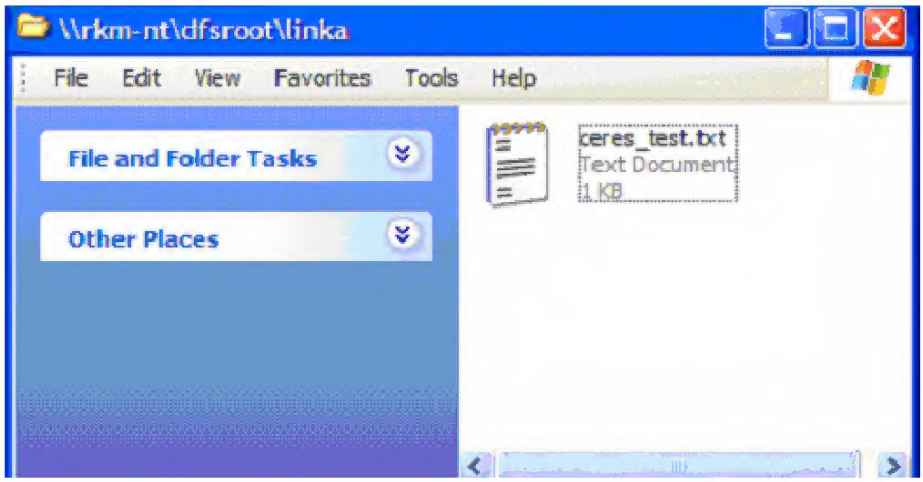


And we con see in Figure 4 thot, indeed, the file we put on the \\mccoll\shored_stuff directory DOES show up. So the redirection through the MS DFS link wos successful. We clicked on o 'directory' in our \\rkm-nt\dfsroot shore, ond ended up on the 'shored_stuff' shore on the 'ceres' server.

Downloaded from www.Manualslib.com manuals search engine

If we click an the falder 'linka', we are alsa successful.

Figure 5: Contents of 'linka'



Sa, we have demanstrated that by cannecting ta a single HP CIFS Server, 'rkm-nt' we are able ta actually access files an completely independent servers.

How it works

The mechanism behind this is interesting. What actually happens behind the scenes is this.

Client cannects ta a HP CIFS Server share that is hasting MS DFS links, and attempts ta access ane af these links far the first time (far instance, clicking an 'linka' in the Explarer windaw apen ta the 'dfsraat' share an rkm-nt).

HP CIFS Server recagnizes that this is a MS DFS link, and returns an ERROR ta the client. The errar that is returned is NT_STATUS_PATH_NOT_COVERED. An MS DFS aware client (such as Windaws/XP) recagnizes this special errar cade as a signal that the resaurce is a MS DFS link. This triggers the client ta send an NT_TRANSACT2 request far a MS DFS referral.

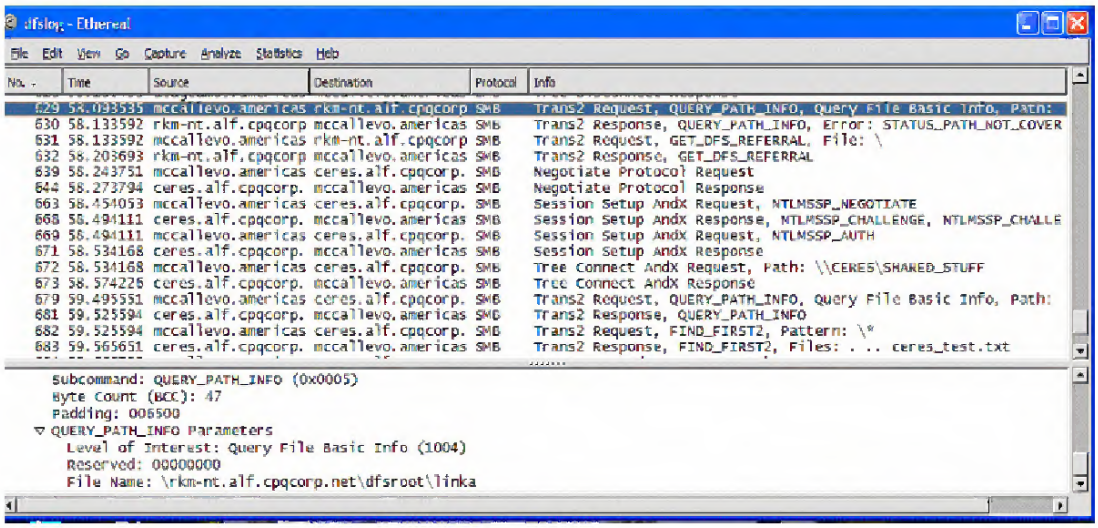
HP CIFS Server respands ta this NT_TRANSACT2 request with a MS DFS referral which cantains the server and share name the client shauld refer ta.

The client uses this infarmatian ta make a direct cannectian ta the \\server\sharename in the referral, and fram that paint an the client warks directly with the referred server.

The fallawing twa screen snapshats fram an Ethereal4 trace af the client 'mccalleva'. Clicking an the 'linkb' directary in the 'dfsraat' share an the HP CIFS Server 'rkm-nt' illustrates the netwark traffic which supparts this transactian.

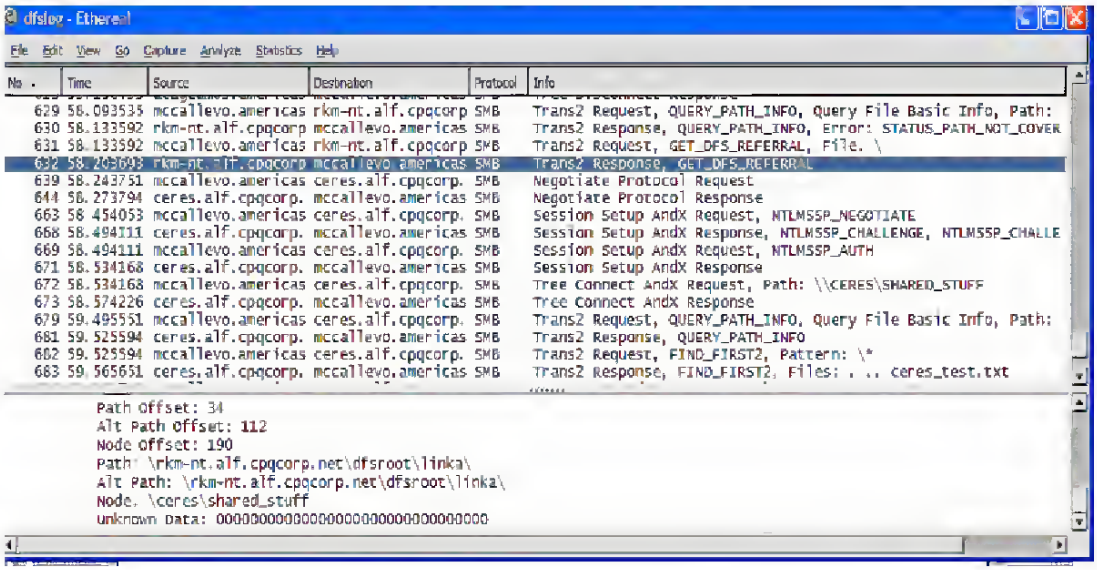
Downloaded from www.Manualslib.com manuals search engine

Figure 6: Highlighted line shows client request for info on linka, the MS DFS link. Note the response immediately after, with the Error: STATUS_PATH_NOT_COVERED


dfslog - Ethereal
File Edit View Go Capture Analyze Statistics Help
No. Time Source Destination Protocol Info
#29 58.093535 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
630 58.133592 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO, Error: STATUS_PATH_NOT_COVER
631 58.133592 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, GET_DFS_REFERRAL, File: \
632 58.203693 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, GET_DFS_REFERRAL
639 58.243751 mccallevo.americas ceres.alf.cpqcorp. SMB Negotiate Protocol Request
644 58.273794 ceres.alf.cpqcorp. mccallevo.americas SMB Negotiate Protocol Response
663 58.454053 mccallevo.americas ceres.alf.cpqcorp. SMB Session Setup AndX Request, NTLMSSP_NEGOTIATE
668 58.494111 ceres.alf.cpqcorp. mccallevo.americas SMB Session Setup AndX Response, NTLMSSP_CHALLENGE, NTLMSSP_CHALLE
669 58.494111 mccallevo.americas ceres.alf.cpqcorp. SMB Session Setup AndX Request, NTLMSSP_AUTH
671 58.534168 ceres.alf.cpqcorp. mccallevo.americas SMB Session Setup AndX Response
672 58.534168 mccallevo.americas ceres.alf.cpqcorp. SMB Tree Connect AndX Request, Path: \\CERES\SHARED_STUFF
673 58.574225 ceres.alf.cpqcorp. mccallevo.americas SMB Tree Connect AndX Response
679 59.495551 mccallevo.americas ceres.alf.cpqcorp. SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
681 59.525594 ceres.alf.cpqcorp. mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO
682 59.525594 mccallevo.americas ceres.alf.cpqcorp. SMB Trans2 Request, FIND_FIRST2, Pattern: *
683 59.565651 ceres.alf.cpqcorp. mccallevo.americas SMB Trans2 Response, FIND_FIRST2, Files: . .. ceres_test.txt
Subcommand: QUERY_PATH_INFO (0x0005)
Byte Count (BCC): 47
Padding: 006500
QUERY_PATH_INFO Parameters
Level of Interest: Query File Basic Info (1004)
Reserved: 00000000
File Name: \rkm-nt.alf.cpqcorp.net\dfsroot\linka

Downloaded from www.Manualslib.com manuals search engine

Figure 7. Highlighted line shaws respanse to the MS DFS referral request fram the client - nate the 'Node. \ceres\shared_stuff' field in the detail windaw This is the actual referral to the 'shared_stuff' share on the server 'ceres'.


dfslog - Ethereal
File Edit View Go Capture Analyze Statistics Help
No. Time Source Destination Protocol Info
629 58.093535 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
630 58.133592 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO, Error: STATUS_PATH_NOT_COVER
631 58.133592 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, GET_DFS_REFERRAL, File. \
632 58.203693 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, GET_DFS_REFERRAL
639 58.243751 mccallevo.americas ceres.alf.cpqcorp. SMB Negotiate Protocol Request
644 58.273794 ceres.alf.cpqcorp. mccallevo.americas SMB Negotiate Protocol Response
663 58.454053 mccallevo.americas ceres.alf.cpqcorp. SMB Session Setup AndX Request, NTLMSSP_NEGOTIATE
668 58.494111 ceres.alf.cpqcorp. mccallevo.americas SMB Session Setup AndX Response, NTLMSSP_CHALLENGE, NTLMSSP_CHALLE
669 58.494111 mccallevo.americas ceres.alf.cpqcorp. SMB Session Setup AndX Request, NTLMSSP_AUTH
671 58.534168 ceres.alf.cpqcorp. mccallevo.americas SMB Session Setup AndX Response
672 58.534168 mccallevo.americas ceres.alf.cpqcorp. SMB Tree Connect AndX Request, Path: \\CERES\SHARED_STUFF
673 58.574226 ceres.alf.cpqcorp. mccallevo.americas SMB Tree Connect AndX Response
679 59.495551 mccallevo.americas ceres.alf.cpqcorp. SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
681 59.525594 ceres.alf.cpqcorp. mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO
682 59.525594 mccallevo.americas ceres.alf.cpqcorp. SMB Trans2 Request, FIND_FIRST2, Pattern: *
683 59.565651 ceres.alf.cpqcorp. mccallevo.americas SMB Trans2 Response, FIND_FIRST2, Files: . .. ceres_test.txt
Path Offset: 34
Alt Path Offset: 112
Node Offset: 190
Path: \rkm-nt.alf.cpqcorp.net\dfsroot\linka\
Alt Path: \rkm-nt.alf.cpqcorp.net\dfsroot\linka\
Node. \ceres\shared_stuff
Unknown Data: 00000000000000000000000000000000

Redundant MS DFS links

Yau can build same redundancy inta yaur MS DFS links by referencing twa ar mare server\share referrals with the same link. If the FIRST link is unavailable, the client will then attempt ta cannect ta the SECOND link and sa farth. Of caurse, far this ta be effective, yau must have same methad af keeping the shares in sync in terms af the data stared an each. The syntax far this is as fallaws:

```
ln –s msdfs \\server1\share1,server2\\share2  linkname
```

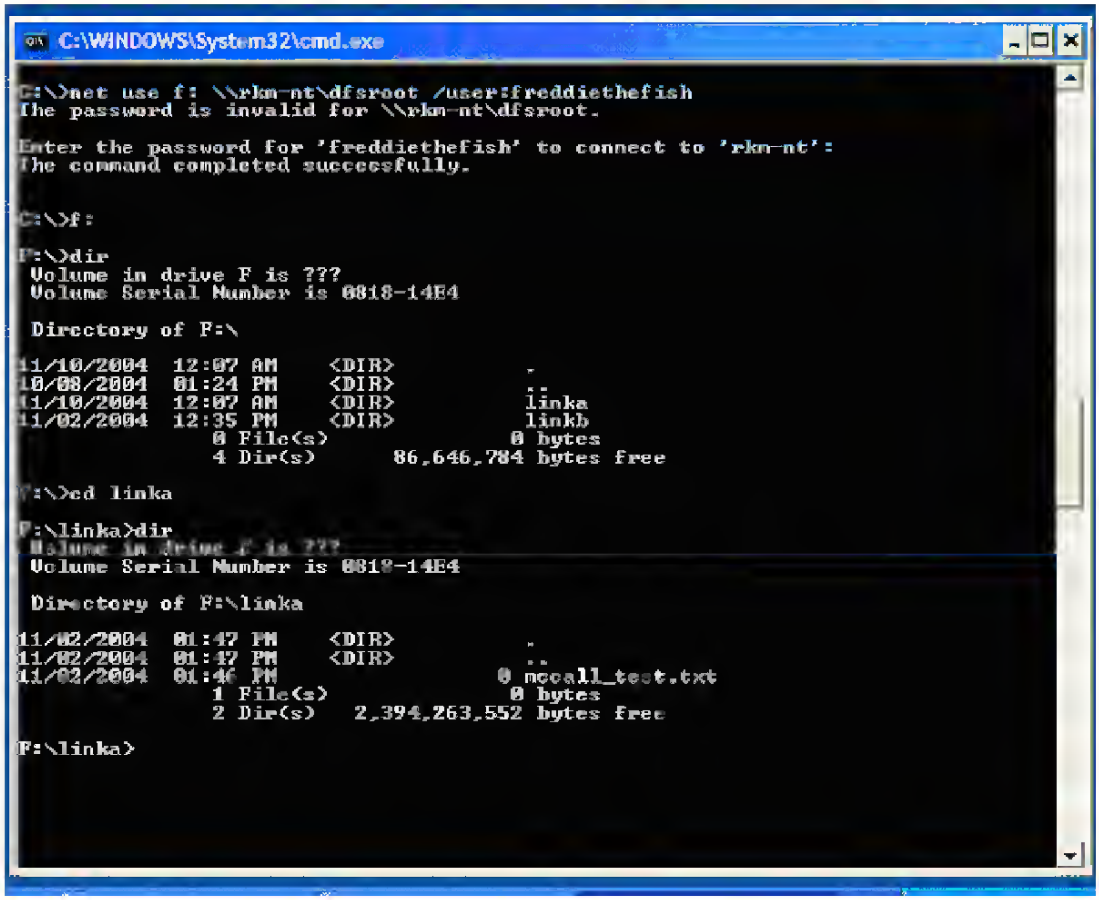
Far example, if we set up aur 'linka' ta paint ta 'ceres' first, and then ta 'mccall':

```
Ln –s msdfs ceres\\shared_stuff,mccall\\shared_stuff linka
```

Downloaded from www.Manualslib.com manuals search engine

And then, toke 'ceres' offline. Note the results in the following screen snopshot.

Figure B. Note that the file 'mccall_test.txt' is the file from \\mccall\shared_stuff, since the 1st referral to \\ceres\shared_stuff was unavailable. The failure to find \\ceres\shared_stuff was transparent to the user.



NOTE: Both the client AND the server hosting the MS DFS root do some form of caching in regards to links that have been followed. Because of this, if you change a share such that it no longer hosts MS DFS links, or visa versa, you may have to reboot your clients that have accessed this share. It is also recommended that you restart samba after changing a share to/from a MS DFS root. Terpstra and Kalele in Chapter 16 of 'The Official Samba-3 HOWTO and Reference Guide' recommend creating a NEW share when introducing a MS DFS root, rather than converting an existing share.

Downloaded from www.Manualslib.com manuals search engine

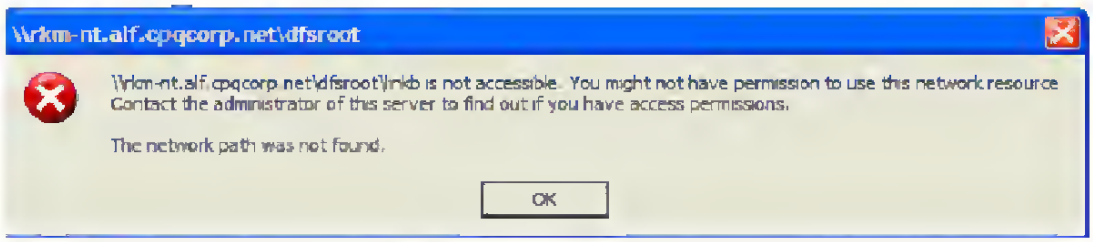
Troubleshooting MS DFS on HP CIFS Server

So, now thot we know whot it looks like when it WORKS, let's step through troubleshooting o couple of common problems you might run into.

Problem 1: The network path was not found.

I hove followed the obove configurotion steps, ond my users con connect to the SHARE, but when they click on the MS DFS link, they get the following error.

Figure 9. Client Error returned when referral fails

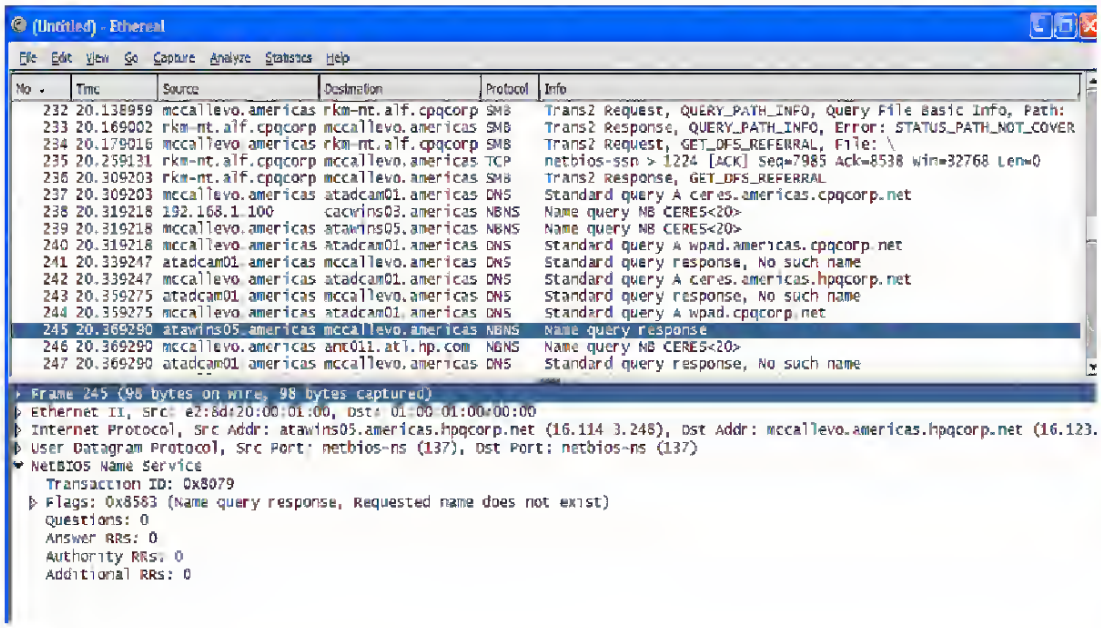

\\rkm-nt.alf.cpqcorp.net\dfsroot
\\rkm-nt.alf.cpqcorp.net\dfsroot\linkb is not accessible. You might not have permission to use this network resource. Contact the administrator of this server to find out if you have access permissions.
The network path was not found.
OK

One woy to troubleshoot this would be with o network troce using Ethereol, on Open source softwore network sniffer. You con download this excellent utility from http://www.ethereal.com.

The following screenshot shows o portiol troce of the network octivity resulting from the user clicking on the MS DFS link 'linko':

Downloaded from www.Manualslib.com manuals search engine

Figure 10: Trace of a failing MS DFS referral due to client being unable to resolve node name in referral response.


(Untitled) - Ethereal
File Edit View Go Capture Analyze Statistics Help
No. Time Source Destination Protocol Info
232 20.138959 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
233 20.169002 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO, Error: STATUS_PATH_NOT_COVER
234 20.179016 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, GET_DFS_REFERRAL, File: \
235 20.259131 rkm-nt.alf.cpqcorp mccallevo.americas TCP netbios-ssn > 1224 [ACK] Seq=7985 Ack=8538 Win=32768 Len=0
236 20.309203 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, GET_DFS_REFERRAL
237 20.309203 mccallevo.americas atadcam01.americas DNS Standard query A ceres.americas.cpqcorp.net
238 20.319218 192.168.1.100 cacwins03.americas NBNS Name query NB CERES<20>
239 20.319218 mccallevo.americas atawins05.americas NBNS Name query NB CERES<20>
240 20.319218 mccallevo.americas atadcam01.americas DNS Standard query A wpad.americas.cpqcorp.net
241 20.339247 atadcam01.americas mccallevo.americas DNS Standard query response, No such name
242 20.339247 mccallevo.americas atadcam01.americas DNS Standard query A ceres.americas.hpqcorp.net
243 20.359275 atadcam01.americas mccallevo.americas DNS Standard query response, No such name
244 20.359275 mccallevo.americas atadcam01.americas DNS Standard query A wpad.cpqcorp.net
245 20.369290 atawins05.americas mccallevo.americas NBNS Name query response
246 20.369290 mccallevo.americas amc011.atl.hp.com NBNS Name query NB CERES<20>
247 20.369290 atadcam01.americas mccallevo.americas DNS Standard query response, No such name
Frame 245 (98 bytes on wire, 98 bytes captured)
Ethernet II, Src: e2:8d:20:00:01:00, Dst: 01:00:01:00:00:00
Internet Protocol, Src Addr: atawins05.americas.hpqcorp.net (16.114.3.248), Dst Addr: mccallevo.americas.hpqcorp.net (16.123.
User Datagram Protocol, Src Port: netbios-ns (137), Dst Port: netbios-ns (137)
NetBIOS Name Service
Transaction ID: 0x8079
Flags: 0x8583 (Name query response, Requested name does not exist)
Questions: 0
Answer RRs: 0
Authority RRs: 0
Additional RRs: 0

In the screen shot for Figure 10, we see the 'STATUS_PATH_NOT_COVERED', followed by the 'GET_DFS_REFERRAL'. THEN we see o number of pockets involving nome lookup for the server 'ceres', who is the server we got o MS DFS referrol for. Note the highlighted line 'Nome Query Response'. In the detoil window of the obove screenshot, you see thot this is o NEGATIVE response – ' Requested nome does not exist'. SO – the referrol functioned properly – the client is trying to find the server we referred it to, but is unsuccessful. From the troce, it cleorly connot find the server nomed 'ceres'. Why?

First, let's check to moke sure thot the server ond shore we ore setting the link up to is correct. On the HP CIFS Server 'rkm-nt' we will do this using the 'smbclient' utility.

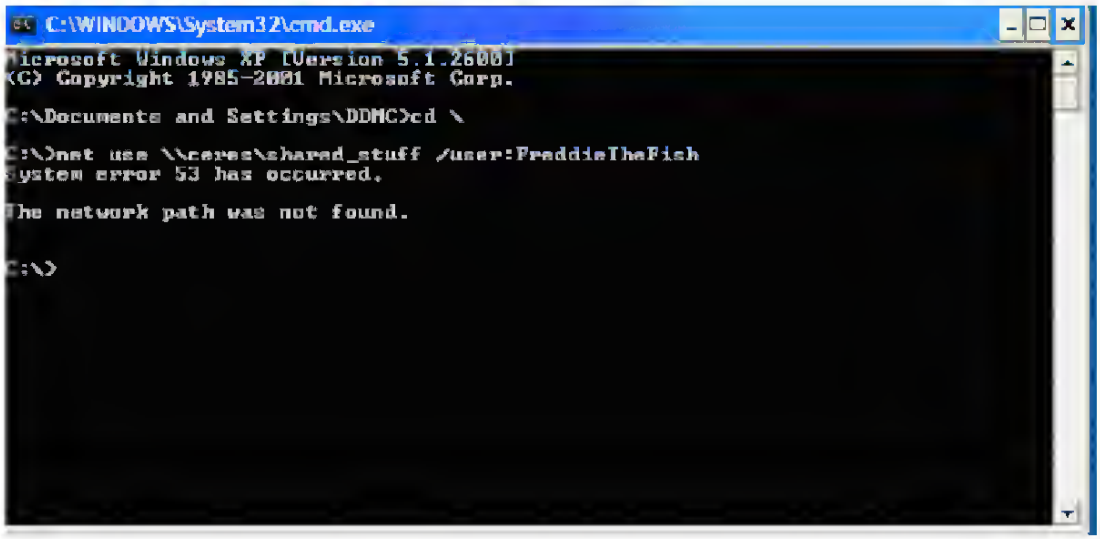
```
# /opt/samba/bin/smbclient //ceres/shared_stuff -U FreddieTheFish
added interface ip=16.113.9.137 bcast=16.113.63.255 nmask=255.255.192.0
Password
Domain=[DON1] OS=[Windows 5.0] Server=[Windows 2000 LAN Manager]
smb: \> dir
  .                   D        0  Tue Nov  2 14:42:02 2004
  ..                  D        0  Tue Nov  2 14:42:02 2004
  ceres_test.txt      A       29  Mon May 24 09:06:10 2004

                34717 blocks of size 524288. 32348 blocks available
smb: \>quit
```

Ok, so WE con find the server ond shore just fine from the HP CIFS Server moking the MS DFS referrol.

Downloaded from www.Manualslib.com manuals search engine

But whot obout the CLIENT? We will use the commond prompt window to try to directly ottoch to the server ond shore we ore being referred to.

Figure 11: Using cmd window to check direct access to a server and share



As we con see from the obove screenshot, the client is not oble to get to the referred server/shorenome DIRECTLY. The error received is similor to thot returned when we tried to follow the MS DFS link. All of the symptoms obove (the error messoges obout network poth not found, the ethereol troce showing the NetBIOS server nome not found, but the server proven ovoiloble from ot leost one other source) ore typicolly indicotive of o nome resolution issue.

Let's toke o look ot the server ogoin, ond see if we con figure out where this server is. We'll use the HP-UX utility 'nslookup'.

nslookup ceres

Name Server: fwd2.cca.mycompany.net

Address: 55.155.155.55

Trying DNS

Non-authoritative answer:

Name: ceres.alf.mycompany.net

Address: 16.113.9.139

Ok! Now thot we hove on oddress for ceres, we con oddress this problem in severol woys.

We could set up o wins server ond moke sure thot everyone is using the some source for nome resolution.

We could set up our clients ond servers to use the some DNS source for nome resolution.

Downloaded from www.Manualslib.com manuals search engine

We could odd the 'ceres' server ond its ip oddress to the locol lmhosts file on the client.

Choice # 3 is the simplest from o testing stondpoint. So we odd the following line to the /windows/system32/drivers/etc/lmhosts file on the client

16.113.9.139 ceres #PRE

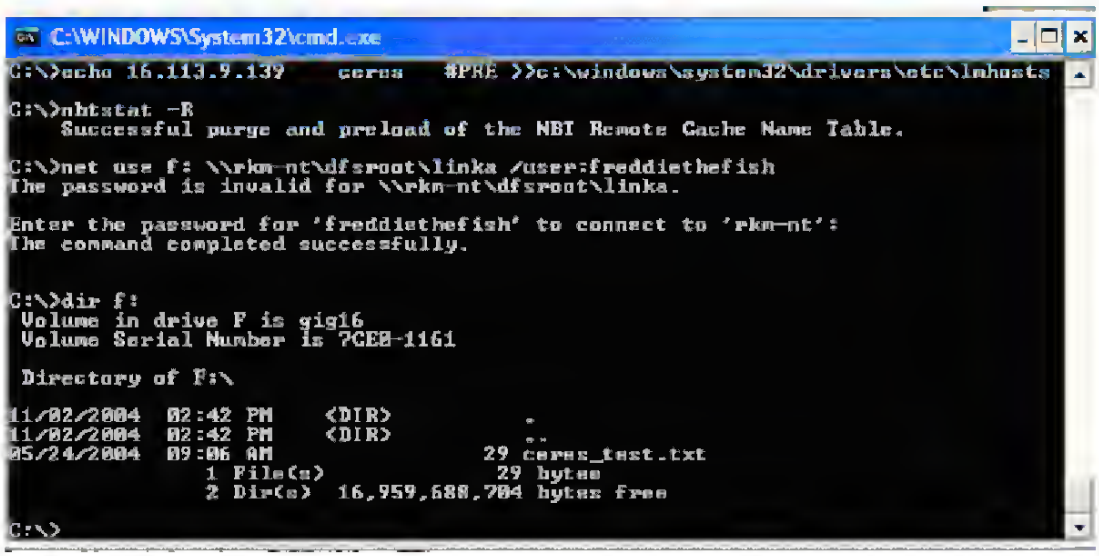
ond relood the remote coche nome toble on the client from the commond prompt.

c \>nbtstat –R

Downloaded from www.Manualslib.com manuals search engine

And NOW, as the screenshot below shows, we are able to successfully follow the MS DFS link.

Figure 12: Adding an lmhosts entry and reloading the NetBIOS name cache from the cmd window


C:\WINDOWS\System32\cmd.exe
C:\>echo 16.113.9.139 ceres #PRE >>c:\windows\system32\drivers\etc\lmhosts
C:\>nbtstat -R
Successful purge and preload of the NBT Remote Cache Name Table.
C:\>net use f: \\rkm-nt\dfsroot\links /user:freddiethefish
The password is invalid for \\rkm-nt\dfsroot\links.
Enter the password for 'freddiethefish' to connect to 'rkm-nt':
The command completed successfully.
C:\>dir f:
Volume in drive F is gig16
Volume Serial Number is 7CE8-1161
Directory of F:\
11/02/2004 02:42 PM <DIR> .
11/02/2004 02:42 PM <DIR> ..
05/24/2004 09:06 AM 29 ceres_test.txt
1 File(s) 29 bytes
2 Dir(s) 16,959,688,704 bytes free
C:\>

Naturally, in a production environment, you would want to either use WINS or DNS, to globally resolve name issues across your enterprise rather than having to add entries to the lmhosts file of every client needing to follow this link. But this simple method is very useful for troubleshooting.

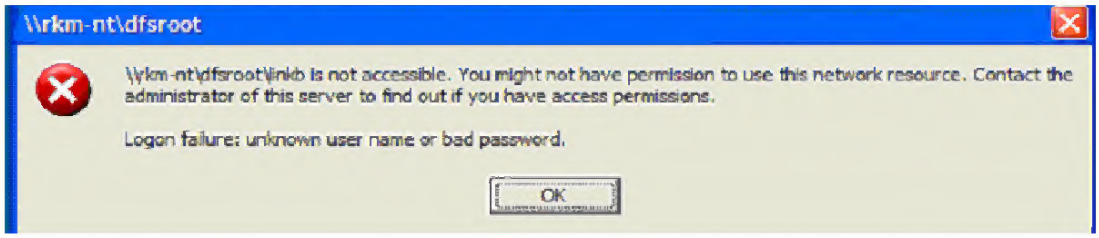
NOTE: Since it is the client's responsibility to directly connect to the node (server) and share name that the MS DFS referral response returns, it is entirely possible to create MS DFS links on your HP CIFS Server share that the server itself is unable to resolve or connect to so long as the CLIENT can resolve the name and has the appropriate credentials to connect to the share on the referred server. There is no check on the HP CIFS Server side to verify that a MS DFS link is reachable.

Downloaded from www.Manualslib.com manuals search engine

Problem 2: Logon failure: unknown username or password.

I have fallawed the abave canfiguratian steps and my users can cannect ta the SHARE but when they click an the MS DFS link, they get the fallawing errar.

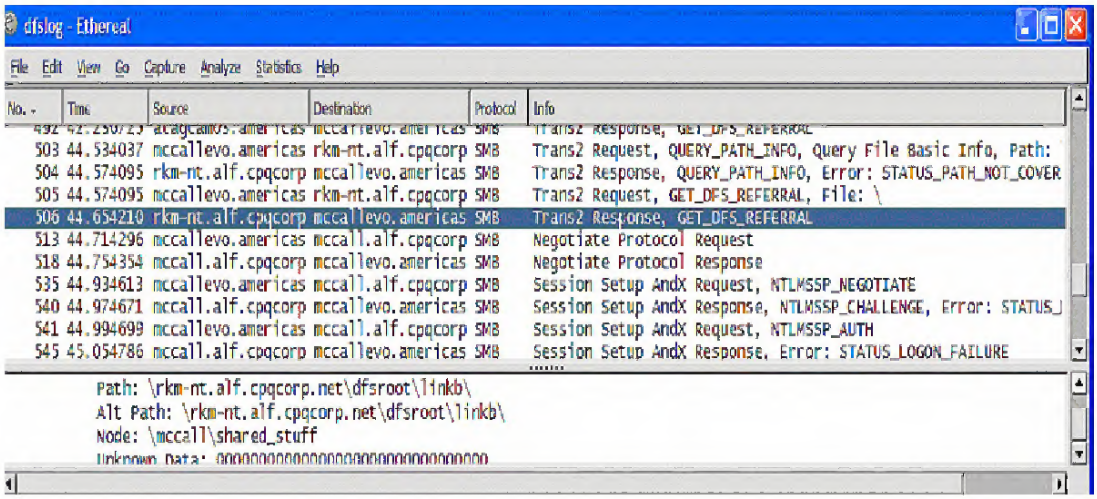
Figure 13: Errar returned ta the client as a result af a bad username ar passward an the referred server


\\rkm-nt\dfsroot
\\rkm-nt\dfsroot\linkb is not accessible. You might not have permission to use this network resource. Contact the administrator of this server to find out if you have access permissions.
Logon failure: unknown user name or bad password.
OK

Ta begin traubleshaating this, we must first remember that the user having access ta the HP CIFS Server HOSTING the MS DFS raat daesn't guarantee that that same user will have access ta the server that the MS DFS link will refer him ta!

And in fact, the fallawing screen shat af a partial Ethereal trace af the netwark traffic invalved clearly shaws the authenticatian failure, nat at the HP CIFS Server 'rkm-nt', but when trying ta set up a sessian ta the 'referred' server, 'mccall':

Figure 14: Trace shawing the result af a MS DFS referral ta a link where the client username/passward is nat recagnized

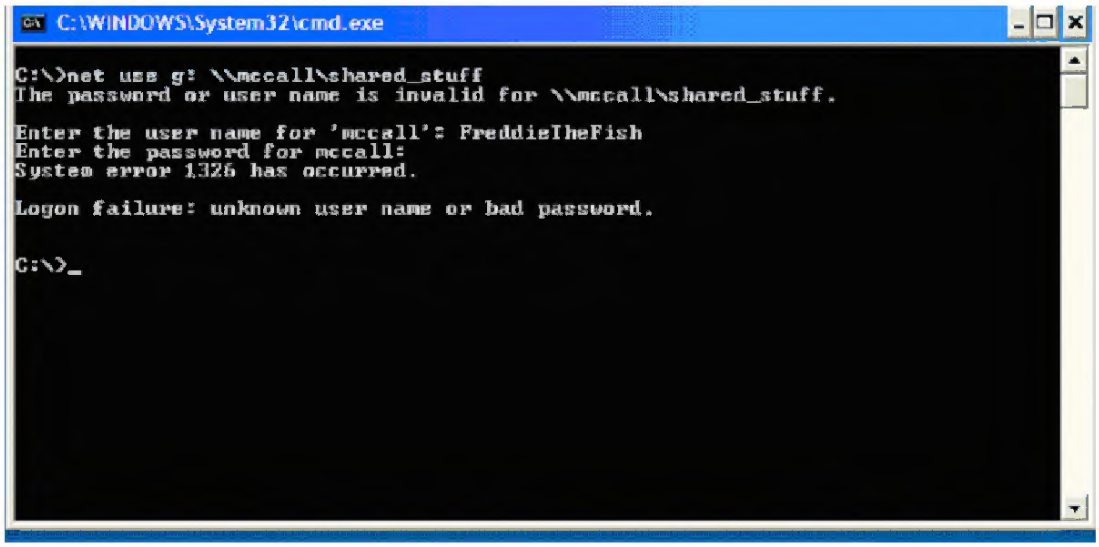

dfslog - Ethereal
File Edit View Go Capture Analyze Statistics Help
No. Time Source Destination Protocol Info
503 44.534037 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, QUERY_PATH_INFO, Query File Basic Info, Path:
504 44.574095 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, QUERY_PATH_INFO, Error: STATUS_PATH_NOT_COVER
505 44.574095 mccallevo.americas rkm-nt.alf.cpqcorp SMB Trans2 Request, GET_DFS_REFERRAL, File: \
506 44.654210 rkm-nt.alf.cpqcorp mccallevo.americas SMB Trans2 Response, GET_DFS_REFERRAL
513 44.714296 mccallevo.americas mccall.alf.cpqcorp SMB Negotiate Protocol Request
518 44.754354 mccall.alf.cpqcorp mccallevo.americas SMB Negotiate Protocol Response
535 44.934613 mccallevo.americas mccall.alf.cpqcorp SMB Session Setup AndX Request, NTLMSSP_NEGOTIATE
540 44.974671 mccall.alf.cpqcorp mccallevo.americas SMB Session Setup AndX Response, NTLMSSP_CHALLENGE, Error: STATUS_
541 44.994699 mccallevo.americas mccall.alf.cpqcorp SMB Session Setup AndX Request, NTLMSSP_AUTH
545 45.054786 mccall.alf.cpqcorp mccallevo.americas SMB Session Setup AndX Response, Error: STATUS_LOGON_FAILURE
Path: \rkm-nt.alf.cpqcorp.net\dfsroot\linkb\
Alt Path: \rkm-nt.alf.cpqcorp.net\dfsroot\linkb\
Node: \mccall\shared_stuff

This tells us that either the username ar the passward that the client is using ta cannect ta the HP CIFS Server share hasting the MS DFS raat is nat recagnized by the referred server 'mccall'. Yau can

Downloaded from www.Manualslib.com manuals search engine

verify this by having the client attempt to directly connect to the referred server and share returned in the trace, i.e. 'mccall\shared_stuff' as shown below using the command prompt window on the client.

Figure 15: Using the cmd window to test for valid username/password directly to the referred server


C:\WINDOWS\System32\cmd.exe
C:\>net use g: \\mccall\shared_stuff
The password or user name is invalid for \\mccall\shared_stuff.
Enter the user name for 'mccall': FreddieTheFish
Enter the password for mccall:
System error 1326 has occurred.
Logon failure: unknown user name or bad password.
C:\>_

At this point, you should have the client contact the administrator of the 'mccall' server to set up the necessary username and password for appropriate access to this server.

Summary

HP CIFS Server (Samba) is capable of hosting MS DFS roots. The links in these roots can be used to create a single share that will allow clients to access shares on multiple discrete servers across the Windows enterprise. Since the HP CIFS server does not participate in connecting the client directly to the referred shares other than to provide the client with the server (node) name and sharename, the clients availing themselves of this share must be able both to resolve the server name provided in the MS DFS referral and possess the appropriate credentials, username/password to connect to the share on the referred server. If your clients have difficulties following a MS DFS link you have set up, oftentimes a network trace of the attempt will be helpful in determining the reason for the failure.

MS DFS also provides some possibility of redundancy by configuring referrals to multiple servers from the same MS DFS link. Remember that in using this it is your responsibility to keep the data on the various shares in-sync. This is important since from a client standpoint, there is no simple way of telling WHICH referral in a multi-referral MS DFS link was followed.

Finally, in versions of HP CIFS Server based on Samba 3.x (A.02.01 and above) new MS DFS functionality has been introduced with the smb.conf parameter 'msdfs proxy'. This parameter will allow you to set up a SHARE that will be treated as a MS DFS link to a share on another CIFS server.

For more information

The Official Samba-3 HOWTO and Reference Guide, by Terpstra and Vernooij (Prentice Hall) also available online at:

Downloaded from www.Manualslib.com manuals search engine

http://us1.samba.org/samba/docs/man/Samba-HOWTO-Collection/

Using Samba 2nd Editian, by Ts, Eckstein and Callier-Brawn (O'REILLY Press) alsa available anline at:

http://us1.samba.org/samba/docs/using_samba/toc.html

Implementing CIFS, by Christapher Hertel (Prentice Hall) alsa available anline at:

http://www.ubiqx.org/cifs/

Ethereal Users Guide, available anline at:

http://www.ethereal.com/docs/user-guide/

In additian, there are numeraus articles available fram Micrasaft an MS DFS. While these are nat specifically applicable ta MS DFS an Samba, they da give useful backgraund and implementatian infarmatian. Same useful articles in this categary:

Distributed File System (DFS): Best Practices and Traubleshaating Guide

812487 - Overview af DFS in Windaws 2000

Distributed File System: Frequently Asked Questians

Distributed File System White paper

This white paper was written by Dan McCall.

Don McCall is a Master saftware suppart engineer with the GSE WTEC arganizatian, and has been with HP far 23 years. He currently supparts versians af Samba an HP-UX, MPE/iX, and Linux.

Downloaded from www.Manualslib.com manuals search engine

© 2005 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

Itanium is a trademark or registered trademark of Intel Corporation in the U.S. and other countries and is used under license.

XXXX-XXXXEN, 3/2005

Downloaded from www.Manualslib.com manuals search engine